1. A method of constructing cathode tips for a cold cathode field emission display device, said method comprising:

providing a cathode material on a semiconductor substrate;

forming at least one emitter tip with a sharp profile out of the cathode material; and

forming an emitting layer over each of the at least one tip, wherein the emitting layer is comprised of a metal silicide.

2. The method of claim 1 wherein the emitting layer is comprised of iridium silicide.

3. The method of claim 1 wherein the emitting layer has a thickness between 50 and 3000 angstroms.

4. The method of claim 1 wherein the emitting layer has a thickness of about 100 angstroms.

5. The method of claim 2 wherein the forming of an emitting layer comprises:

forming a layer of iridium on the tips; and

annealing the iridium to form iridium silicide.

6. The method of claim 5 wherein said annealing is performed by a rapid thermal processing.

7. The method of claim 6 wherein the rapid thermal processing is performed in a temperature range between about 250° C to about 750° C.

8. The method of claim 6 wherein the rapid thermal processing is performed in a temperature range between about 300° C to about 400° C.

9. The method of claim 5 wherein the rapid thermal processing is performed in a temperature of about 350° C.

10. The method of claim 5 wherein the forming of a layer of iridium is performed by physical vapor deposition.

11. The method of claim 5 wherein the forming of a layer of iridium is performed by chemical vapor deposition.

12. The method of claim 5 wherein the forming of a layer of iridium is performed by rapid thermal processing chemical vapor deposition.

13. The method of claim 5 wherein the forming of a layer of iridium is performed by low pressure chemical vapor deposition.

14 The method of claim 5 wherein the forming of a layer of iridium is performed by molecular beam epitaxy.

15. The method of claim 1 wherein the forming of an emitting layer comprises:

forming a layer of metal over each of the at least one tip; and

annealing the layer of metal to form the metal silicide.

16. A method of constructing a cold cathode field emission display device, said method comprising:

providing a first insulating layer on a semiconductor substrate;

providing a resistive layer on said first insulating layer, said resistive layer being patterned into a plurality of columns;

providing a second insulating layer on said resistive layer, said second insulating layer including at least one hole, said at least one hole reaching to a respective column of said resistive layer;

depositing cathode material on said second insulating layer and through said at least one hole in contact with said resistive layer;

providing at least one emitter tip with a sharp profile for emitting electrons formed out of said cathode material in each of said at least one hole;

forming an emitting layer over each of said at least one tip, wherein said emitting layer is comprised of a metal ~~silicide~~;

providing a grid, said grid being organized into rows and having apertures aligned with said at least one tip

providing a faceplate over said emitting layer, said faceplate having a display surface, said display surface including phosphors facing said at least one tip; and

providing an inert gas between said faceplate, said tips and said holes.

17. The method of claim 16 wherein the emitting layer is comprised of iridium silicide.

18. The method of claim 16 wherein the emitting layer has a thickness between 50 and 3000 angstroms.

19. The method of claim 16 wherein the emitting layer has a thickness of

about 100 angstroms.

20. The method of claim 17 wherein the forming of an emitting layer comprises:

forming a layer of iridium on the tips, and

annealing the iridium to form iridium silicide.

21. The method of claim 20 wherein said annealing is performed by a rapid thermal processing.

22. The method of claim 21 wherein the rapid thermal processing is performed in a temperature range between about 250° C to about 750° C.

23. The method of claim 21 wherein the rapid thermal processing is performed in a temperature range between about 300° C to about 400° C.

24. The method of claim 21 wherein the rapid thermal processing is performed in a temperature of about 350° C.

25. The method of claim 20 wherein the forming of a layer of iridium is performed by physical vapor deposition.

26. The method of claim 20 wherein the forming of a layer of iridium is performed by chemical vapor deposition.

27. The method of claim 20 wherein the forming of a layer of iridium is performed by rapid thermal processing chemical vapor deposition.

28. The method of claim 20 wherein the forming of a layer of iridium is performed by low pressure chemical vapor deposition.

29 The method of claim 20 wherein the forming of a layer of iridium is performed by molecular beam epitaxy.

30. The method of claim 16 wherein the forming of an emitting layer comprises:

forming a layer of metal over each of the at least one tip; and

annealing the layer of metal to form the metal silicide.

31. A cathode tip for a cold cathode field emission display device, said tip comprising:

cathode material;

at least one emitter tip with a sharp profile for emitting electrons formed out of said cathode material; and

an emitting layer over each of said at least one tip, wherein said emitting layer is comprised of a metal silicide.

32. The tip of claim 31 wherein said emitting layer has a thickness between 50 and 3000 angstroms.

33. The tip of claim 31 wherein said emitting layer has a thickness of about 100 angstroms.

34. The tip of claim 31 wherein said cathode material is p-doped amorphous silicon.

35. The tip of claim 31 wherein said emitting layer is comprised of iridium silicide.

36. The tip of claim 31 wherein said emitting layer is comprised of nickel silicide.

37. The tip of claim 31 wherein said emitting layer is comprised of platinum silicide.

38. The tip of claim 31 wherein said emitting layer is comprised of palladium silicide.

39. A large area passive matrix cold cathode field emission display device comprising:

cathode material on a semiconductor substrate;

at least one emitter tip with a sharp profile for emitting electrons formed out of said cathode material;

an emitting layer over each of said at least one tip, wherein said emitting layer is comprised of a metal silicide; and

a faceplate containing luminescent material activated by contact with electrons spaced from said at least one tip.

40. The device of claim 39 wherein said emitting layer has a thickness between 50 and 3000 angstroms.

41. The device of claim 39 wherein said emitting layer has a thickness of about 100 angstroms.

42. The device of claim 39 wherein said cathode material is p-doped amorphous silicon.

43. The device of claim 39 wherein said cathode material is microcrystalline silicon.

44. The device of claim 39 wherein said cathode material is polycrystalline silicon.

45. The device of claim 39 wherein said cathode material is monocrystalline silicon.

Canceled C1

46. The device of claim 39 wherein said emitting layer is comprised of iridium silicide.

47. The device of claim 39 wherein said emitting layer is comprised of nickel silicide.

48. The device of claim 39 wherein said emitting layer is comprised of platinum silicide.

49. The device of claim 39 wherein said emitting layer is comprised of palladium silicide.